UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,038	10/31/2003	Christian Rehtanz	004501-748	8368

21839 7590 02/22/2005

BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER	
MASINICK, MICHAEL D	

ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/697,038	REHTANZ ET AL.	
	Examiner	Art Unit	
	Michael D Masinick	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 10/31/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The specification in the current case is vague as to the meaning of the term "emulating", so examiner will be using the definition "To imitate the function of (another system), as by modifications to hardware or software that allow the imitating system to accept the same data, execute the same programs, and achieve the same results as the imitated system" which is believed to be the goal of the specification.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 9 is rejected under 35 U.S.C. 101. The passive language of claim 9 ("which is loadable and executable") does not satisfy the statutory requirements that software based patents **must** be embodied on some type of physical medium. The claimed invention is directed to non-statutory subject matter for this reason.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the

specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. While the specification in this case states that the values are modified, there is no recitation of how or why these values are modified. It would be a burden on one skilled in the art to attempt to make/use the invention from the current disclosure with relation to this claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over "A New Adaptive PMU based protection scheme for transposed/untransposed parallel transmission lines" by Chen et al in view of "Adaptive Relay Setting For Stand-Alone Digital Distance Protection" by Xia et al.

6. In reading the specification in this case it is clear that the invention set forth is a combination of previous concepts that have been well documented. Applicant has brought these concepts together to create a more redundant system than was previously available. However, it is not clear to the examiner that this is a non-obvious advancement in technology.

7. Xia et al shows a previously known concept of power system distance protection based on calculations at various points in the power network and individual corrective measures.

8. Chen et al shows a method for the protection of an electric power transmission network, where local protection functions are implemented by a plurality of local protection devices located at a plurality of locations throughout the network, characterized in that the method comprises the steps of measuring phasor data for voltages and currents at a plurality of locations (PMUs) of the network, transmitting said phasor data to a central processing device (See Figure 1, page 397), emulating, in the central processing device, protection functions that are implemented in the local protection devices (Flow chart logic of Figure 1), and executing control commands ("issue tripping signal" – figure 1).

9. Chen shows a new way of protection for distance protection based upon a central communication means. Chen does not specifically show that the previously known way of distance protection can be used in combination with the concepts of Chen to achieve a redundant system.

10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use both the "old" concepts of Xia in combination with the "new" concepts of Chen to produce a redundant system capable of uptime exceeding that of either system alone because "[Advancing technology] techniques use synchronized data from the two terminals and the performance and accuracy of protection systems have been improved over those limited to using only local data" (Col 2 of Chen). Because these improvements do not affect the previous operation of such a system, they are able to be used together to provide a more robust solution.

11. Referring to claim 2, , wherein a protection function emulated in the central processing device (2) is one of a differential protection function, a phase comparison function, an

overcurrent detection function, or a thermal overload detection function (Page 398, Column 1 of Chen).

12. Referring to claim 3, Chen shows wherein a protection function emulated in the central processing (2) device is a distance protection function (Page 398, col 2 of Chen at step 7).

13. Referring to claim 4, Chen shows the step of adapting values of predetermined parameters that are used in the protection function in accordance with measured phasor values (Page 398, col 2 of Chen).

14. Referring to claim 5, Chen shows wherein the predetermined parameters are impedances of lines or equivalent circuits (Page 399, Col 2 – "System Modeling").

15. Referring to claim 6, Chen shows wherein the predetermined parameters are limit values that, when exceeded, cause protective action to be taken (Page 401, Table II of Chen).

16. Referring to claim 8, Chen shows wherein the distance protection function for a power line linking a first bus (A) of the network to a second bus (B) of the network comprises at least one of the steps of determining, an equivalent representation of the network as observed at the first bus (A), and determining an equivalent representation of the network as observed at the second bus (B), and the step of computing a distance protection algorithm that incorporates at

least one of the equivalent representations of the network as observed at the first or second bus, respectively (Page 399, Col 2 – "System Modeling").

17. Claims 9 and 10 are rejected under the same basis as claim 1 above.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over over "A New Adaptive PMU based protection scheme for transposed/untransposed parallel transmission lines" by Chen et al in view of "Adaptive Relay Setting For Stand-Alone Digital Distance Protection" by Xia et al as shown above and further in view of EP 1 134 867 to Bertsch et al (assigned to the present assignee).

20. Chen in view of Xia s shown above does not show the steps of computing, from measured phasor values, a stability measure of the network, and adapting limit values in accordance with said stability measure.

21. The Bertsch Patent application shows a way of assessing the stability of an electric power transmission network from measured phasor values.

22. It would have been obvious to one of ordinary skill in the art to use this method of assessing the stability of an electric power transmission network from measured phasor values to adapt the limit values for tripping the error procedure because a more stable network can handle

errors of a smaller magnitude and unnecessary power loss is a great disservice to customers and society in general.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

24. U.S. Patent Publication 2004/0010350 to Lof shows a similar distributed power generation system protection scheme.

25. "Balanced Power: The Next Generation" online article shows background on the current state of the power generation and protection systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D Masinick whose telephone number is (571) 272-3746. The examiner can normally be reached on Mon-Fri, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MDM

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100